



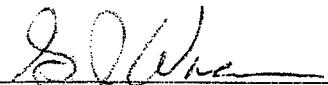
**Determination of Elemental Concentration of Cu and Pb in  
Soil by X-Ray Fluorescence Spectrometry**  
**MCLinc Project #KAM001690**

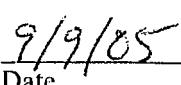
Prepared for:  
Kaiser Analytical Management Services, Inc.

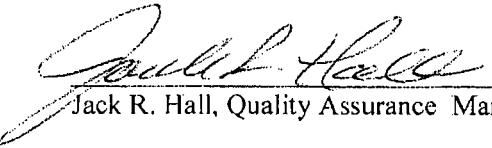
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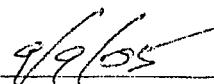
September 9, 2005

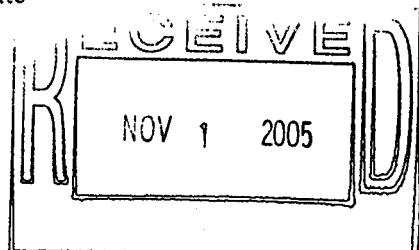
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Gregory J. Wagner, Ph.D.

  
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Date

  
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Jack R. Hall, Quality Assurance Manager

  
\_\_\_\_\_  
Date



BZ-A-000895

## ANALYSIS SUMMARY

### DETERMINATION OF ELEMENTAL COPPER

MCL Sample ID	KAM Sample ID	Cu (mg/kg)	Comment
05-1060	BT50-001A	13.1	B qualifier
05-1061	BT50-003A	19.7	B qualifier
05-1062	BS51-000A	18.4	B qualifier
05-1063	BT51-005A	14.2	B qualifier
05-1064	BT51-006A	16.1	B qualifier
05-1065	BT51-003A	16.5	B qualifier
05-1066	BT51-002A	9.0	B qualifier
05-1067	BT50-002A	15.0	B qualifier
05-1068	BT51-000A	13.0	B qualifier
05-1066d	BT51-002A	11.8	B qualifier
Lab Control Sample	n/a	94.5	112.8 actual
Lab Control Sample	n/a	96.5	99 actual
Reporting Limit	n/a	34.6	NIST SRM 2709
Method Detection Limit	n/a	2.3	NIST SRM 2709

### DETERMINATION OF ELEMENTAL LEAD

MCL Sample ID	KAM Sample ID	Pb (mg/kg)	Comment
05-1060	BT50-001A	47.0	Observed
05-1061	BT50-003A	51.6	Observed
05-1062	BS51-000A	25.4	Observed
05-1063	BT51-005A	23.8	Observed
05-1064	BT51-006A	17.1	B qualifier
05-1065	BT51-003A	20.9	Observed
05-1066	BT51-002A	16.1	B qualifier
05-1067	BT50-002A	21.1	Observed
05-1068	BT51-000A	19.7	Observed
05-1066d	BT51-002A	16.6	B qualifier
Lab Control Sample	n/a	55.7	68.2 actual
Lab Control Sample	n/a	170.8	161 actual
Reporting Limit	n/a	18.9	NIST SRM 2709
Method Detection Limit	n/a	6.3	NIST SRM 2709

All results reported on a dry weight basis.

## CASE NARATIVE

Samples were received in good condition at Materials and Chemistry Laboratory, Inc. (MCLinc) on August 31, 2005. The identification of the samples used during this analysis is provided in the Table 1 below.

Table 1. Sample Identification.

MCLinc Sample ID	KAM Sample ID	Sample Comments
05-1060	BT50-001A	Soil
05-1061	BT50-003A	Soil
05-1062	BS51-000A	Soil
05-1063	BT51-005A	Soil
05-1064	BT51-006A	Soil
05-1065	BT51-003A	Soil
05-1066	BT51-002A	Soil
05-1067	BT50-002A	Soil
05-1068	BT51-000A	Soil

A portion of each sample was dried in an oven at 110°C overnight. The samples were removed from the oven and sealed prior to processing for the X-ray fluorescence spectrometry (XRF). A Chemplex Industries spectromill ball pestle impact grinder (SN 091359) was used to process the soils for XRF. A grinding time of 2.5 minutes was found to be adequate to produce a fine powder. After grinding the soil samples were loaded into a Chemplex Industries double ended XRF sample cups (40 mm diameter x 23 mm high, catalog number 1540) with a polypropylene x-ray film mounted on the bottom (0.00025 inch gauge, catalog number 425, Chemplex Industries). Approximately 0.5 cm depth of material was used. Cotton was added and the sample cups were then capped and labeled.

A Philips PW 1480 x-ray spectrometer (SN D4732) was used to obtain the XRF data. For copper a source voltage of 40 kV with 60 mA was used. For lead a source voltage of 60 kV with 40 mA was used. For both analyses, 5 background measurements were taken at both the low and high end of the fluorescence peak. These values were then summed and an average background determined. The analytical signal was obtained with five measurements on the peak of the fluorescence signal. These signals were also summed.

Three KAM soil samples were run with a blank which consisted of ground glass that had been process as described above. Four NIST XRF calibration standards (Table 2) were run either immediately before or after the three soil samples and blank. A calibration curve was constructed for each run.

The Method Reporting Limit (RL) was assigned to the lowest concentration standard SRM 2709 with 34.6 mg/kg Cu and 18.9 mg/kg Pb. The Method Detection Limit (MDL) was also determined with the lowest concentration standard SRM 2709. The determination used the 98% t variate times the standard deviation of five to seven replicate runs.

Two Laboratory Control Samples (LCS) were used. These samples were Coal Fly Ash (NIST SRM 1633b) and Buffalo River Sediment (NIST SRM 2704). These samples were prepared as described above for the KAM soil samples except that the standards were already in powder form; hence, they were ground for only 0.5 minutes. BT51-002A (05-1066) was selected to perform a duplicate. The duplicate was labeled 05-1066d.

Table 2: NIST standards used during the analysis of the soil samples.

NIST XRF SRM Number	Cu (mg/kg)	Pb (mg/kg)	Purpose
2709	34.6	18.9	Calibration
2704	99.0	161	Calibration/LCS
2711	114	1162	Calibration
2710	2950	5532	Calibration
1633b	112.8	68.2	LCS

All submitted soil samples had determined copper concentrations below the reporting limit but above the method detection limit; hence, they have been labeled "B qualifier". Most the soil samples were slightly greater than the reporting limit for lead. Raw data, MDL and LCS determinations, data summaries, calibration, and calculations are included in the attached sample data package (Attachment 1).

PbMDLSUM

Time (sec)	50	50	50	50	50	50
Sample	blank	2709	2709	2709	2709	2709
Run Number	611	557	577	603	623	624
Element	Pb	Pb	Pb	Pb	Pb	Pb
Low Bkg (cps)	0.072	0.068	0.059	0.057	0.061	0.061
Std Dev	0.002	0.001	0.002	0.002	0.001	0.001
Percent Std Dev	2.406	1.040	3.042	3.613	1.881	1.367
Peak (cps)	0.071	0.074	0.065	0.062	0.065	0.067
Std Dev	0.001	0.001	0.001	0.001	0.001	0.002
Percent Std Dev	1.253	1.911	1.743	2.110	1.743	2.728
High Bkg (cps)	0.059	0.056	0.049	0.046	0.049	0.050
Std Dev	0.001	0.002	0.002	0.001	0.000	0.001
Percent Std Dev	1.863	2.823	3.946	1.180	0.916	1.104
Peak (kCts)						
Gross (kCts)	17.850	18.500	16.350	15.450	16.350	16.650
Bkg (kCts)	16.350	15.500	13.525	12.975	13.675	13.850
Net (kCts)	1.500	3.000	2.825	2.475	2.675	2.800
mg/kg		25.909	24.398	21.375	23.102	24.182
Actual	19.00					
Average Cts	2.76					
SDEV	1.68					
MDL	6.30					

## PbMDLd

Sample	blank	2709	2709	2709	2709	2709
Run Number	611	557	577	603	623	624
Element	Pb	Pb	Pb	Pb	Pb	Pb
Program	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4
Low Bkg						
1	0.073	0.069	0.061	0.057	0.060	0.061
2	0.073	0.068	0.057	0.059	0.059	0.062
3	0.073	0.067	0.060	0.060	0.061	0.060
4	0.069	0.068	0.057	0.055	0.062	0.062
5	0.072	0.068	0.059	0.056	0.061	0.061
Peak						
1	0.072	0.074	0.066	0.064	0.065	0.068
2	0.072	0.076	0.064	0.061	0.066	0.066
3	0.070	0.072	0.065	0.062	0.067	0.065
4	0.071	0.074	0.067	0.061	0.064	0.069
5	0.072	0.074	0.065	0.061	0.065	0.065
High Bkg						
1	0.059	0.058	0.050	0.046	0.048	0.049
2	0.060	0.054	0.052	0.047	0.049	0.050
3	0.059	0.056	0.047	0.046	0.049	0.049
4	0.057	0.057	0.050	0.046	0.049	0.050
5	0.059	0.055	0.048	0.047	0.049	0.050
Date	9/7/2005					



## CULCSSUM

Time (sec)	10	10	10	10	10	10	10	10
Sample	blank	1633b	1066d	2704	2709	2704	2711	2710
Run Number	631	632	614	622	617	618	619	620
Element	Cu	Cu	Cu	CU	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
<b>Low Bkg (cps)</b>	0.065	0.058	0.062	0.060	0.065	0.062	0.062	0.075
Std Dev	0.003	0.003	0.001	0.002	0.003	0.002	0.002	0.004
Percent Std Dev	3.987	4.298	0.878	3.812	3.922	3.323	2.716	4.796
<b>Peak (cps)</b>	0.106	0.176	0.110	0.180	0.127	0.183	0.197	2.607
Std Dev	0.002	0.003	0.004	0.003	0.002	0.004	0.009	0.014
Percent Std Dev	2.075	1.783	3.241	1.683	1.190	2.264	4.583	0.535
<b>High Bkg (cps)</b>	0.055	0.048	0.053	0.052	0.054	0.051	0.053	0.060
Std Dev	0.001	0.002	0.001	0.002	0.002	0.002	0.002	0.002
Percent Std Dev	1.638	4.995	1.675	2.939	3.637	3.255	3.883	3.118
<b>Peak (kCts)</b>								
Gross (kCts)	5.280	8.780	5.520	9.010	6.370	9.160	9.850	130.360
Bkg (kCts)	3.000	2.655	2.895	2.800	2.965	2.845	2.875	3.365
Net (kCts)	2.280	6.125	2.625	6.210	3.405	6.315	6.975	126.995
Net (kcps)	0.046	0.123	0.053	0.124	0.068	0.126	0.140	2.540

## CULCSd

Sample	blank	1633b	1066d	2704	2709	2704	2711	2710
Run Number	631	632	614	622	617	618	619	620
Element	Cu	Cu	Cu	CU	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
Program	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN4	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2
Low Bkg								
1	0.062	0.060	0.062	0.064	0.066	0.062	0.060	0.077
2	0.068	0.059	0.062	0.061	0.064	0.061	0.060	0.071
3	0.065	0.060	0.062	0.059	0.067	0.060	0.062	0.071
4	0.064	0.054	0.063	0.058	0.067	0.064	0.062	0.075
5	0.068	0.059	0.063	0.060	0.061	0.065	0.064	0.079
Peak								
1	0.102	0.171	0.106	0.179	0.127	0.185	0.210	2.628
2	0.106	0.174	0.114	0.180	0.130	0.183	0.187	2.615
3	0.106	0.179	0.110	0.182	0.127	0.189	0.193	2.599
4	0.108	0.177	0.114	0.176	0.127	0.181	0.202	2.595
5	0.106	0.177	0.108	0.184	0.126	0.178	0.193	2.599
High Bkg								
1	0.054	0.051	0.053	0.052	0.055	0.051	0.056	0.058
2	0.054	0.049	0.054	0.052	0.056	0.054	0.055	0.059
3	0.054	0.045	0.054	0.049	0.053	0.052	0.053	0.060
4	0.056	0.048	0.054	0.053	0.053	0.050	0.051	0.063
5	0.055	0.046	0.052	0.052	0.051	0.050	0.052	0.060
Date	9/7/2005							



## CU6668SUM

Time (sec)	10	10	10	10	10	10	10	10
Sample	blank	1066	1067	1068	2709	2704	2711	2710
Run Number	621	613	615	616	617	618	619	620
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
<b>Low Bkg (cps)</b>	0.067	0.064	0.062	0.065	0.065	0.062	0.062	0.075
Std Dev	0.002	0.002	0.003	0.001	0.003	0.002	0.002	0.004
Percent Std Dev	2.277	2.804	4.330	2.077	3.922	3.323	2.716	4.796
<b>Peak (cps)</b>	0.105	0.109	0.113	0.113	0.127	0.183	0.197	2.607
Std Dev	0.004	0.003	0.004	0.004	0.002	0.004	0.009	0.014
Percent Std Dev	3.454	3.043	3.329	3.444	1.190	2.264	4.583	0.535
<b>High Bkg (cps)</b>	0.056	0.055	0.054	0.056	0.054	0.051	0.053	0.060
Std Dev	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Percent Std Dev	6.435	4.357	4.027	3.267	3.637	3.255	3.883	3.118
<b>Peak (kCts)</b>								
Gross (kCts)	5.260	5.450	5.660	5.660	6.370	9.160	9.850	130.360
Bkg (kCts)	3.055	2.965	2.920	3.005	2.965	2.845	2.875	3.365
Net (kCts)	2.205	2.485	2.740	2.655	3.405	6.315	6.975	126.995
Net (kcps)	0.044	0.050	0.055	0.053	0.068	0.126	0.140	2.540

## CU6668d

Sample	blank	1066	1067	1068	2709	2704	2711	2710
Run Number	621	613	615	616	617	618	619	620
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
Program	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2
Low Bkg								
1	0.065	0.066	0.060	0.063	0.066	0.062	0.060	0.077
2	0.068	0.065	0.059	0.064	0.064	0.061	0.060	0.071
3	0.065	0.062	0.064	0.064	0.067	0.060	0.062	0.071
4	0.068	0.064	0.065	0.066	0.067	0.064	0.062	0.075
5	0.067	0.062	0.064	0.066	0.061	0.065	0.064	0.079
Peak								
1	0.110	0.108	0.110	0.118	0.127	0.185	0.210	2.628
2	0.102	0.113	0.111	0.116	0.130	0.183	0.187	2.615
3	0.102	0.110	0.119	0.112	0.127	0.189	0.193	2.599
4	0.108	0.104	0.111	0.112	0.127	0.181	0.202	2.595
5	0.104	0.110	0.115	0.108	0.126	0.178	0.193	2.599
High Bkg								
1	0.060	0.056	0.055	0.058	0.055	0.051	0.056	0.058
2	0.052	0.058	0.051	0.055	0.056	0.054	0.055	0.059
3	0.056	0.052	0.057	0.054	0.053	0.052	0.053	0.060
4	0.052	0.053	0.055	0.054	0.053	0.050	0.051	0.063
5	0.058	0.055	0.054	0.057	0.051	0.050	0.052	0.060
Date	9/7/2005							

PbLCSCALC

Time (sec)	50	50	50	50	50	50	50	50
Sample	blank	1633b	1066d	2704	2709	2704	2711	2710
Run Number	629	630	608	633	603	604	605	606
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
<b>Peak (kCts)</b>								
Gross (kCts)	17.100	20.450	18.250	37.050	15.500	35.300	124.500	714.050
Bkg (kCts)	15.700	12.250	15.300	13.375	12.975	12.900	12.800	16.125
Net (kCts)	1.400	8.200	2.950	23.675	2.525	22.400	111.700	697.925
Standard Amount	0.000	119.392	77.938	241.583	18.900	161.000	1162.000	5532.000
Stds 0 - 161	5.122	55.691	16.649	170.772	13.488	161.290	825.376	5184.878
Counts	1.40	2.53	22.40	111.70	697.93			
Cu (mg/kg)	0.00	18.900	161.000	1162.000	5532.000			
All Stds	Stds 0 - 161							
slope	7.896018	7.4365693						
intercept	54.644757	-5.289229						
0	54.644757	-5.289229						
1000	7950.66	7431.28						

## PbLCSSUM

Time (sec)	50	50	50	50	50	50	50	50
Sample	blank	1633b	1066d	2704	2709	2704	2711	2710
Run Number	629	630	608	633	603	604	605	606
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
<b>Low Bkg (cps)</b>	0.069	0.055	0.068	0.059	0.057	0.057	0.056	0.070
Std Dev	0.003	0.001	0.001	0.001	0.002	0.001	0.001	0.002
Percent Std Dev	3.757	2.707	1.227	1.423	3.613	1.580	1.786	2.740
<b>Peak (cps)</b>	0.068	0.082	0.073	0.148	0.062	0.141	0.498	2.856
Std Dev	0.001	0.001	0.001	0.002	0.001	0.003	0.017	0.053
Percent Std Dev	0.801	1.813	1.370	1.207	1.975	2.148	3.396	1.873
<b>High Bkg (cps)</b>	0.056	0.043	0.054	0.048	0.046	0.047	0.046	0.059
Std Dev	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Percent Std Dev	3.423	1.937	2.021	1.736	1.180	1.919	3.268	1.863
<b>Peak (kCts)</b>								
Gross (kCts)	17.100	20.450	18.250	37.050	15.500	35.300	124.500	714.050
Bkg (kCts)	15.700	12.250	15.300	13.375	12.975	12.900	12.800	16.125
Net (kCts)	1.400	8.200	2.950	23.675	2.525	22.400	111.700	697.925
Net (kcps)	0.006	0.033	0.012	0.095	0.010	0.090	0.447	2.792

## PbLCSd

Sample	blank	1633b	1066d	2704	2709	2704	2711	2710
Run Number	629	630	608	633	603	604	605	606
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
Program	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4
Low Bkg								
1	0.069	0.055	0.069	0.058	0.057	0.058	0.055	0.069
2	0.072	0.054	0.069	0.058	0.059	0.056	0.057	0.068
3	0.072	0.053	0.068	0.059	0.060	0.056	0.055	0.070
4	0.068	0.055	0.068	0.059	0.055	0.057	0.057	0.071
5	0.066	0.057	0.067	0.060	0.056	0.056	0.056	0.073
Peak								
1	0.069	0.084	0.074	0.150	0.064	0.141	0.497	2.897
2	0.068	0.082	0.073	0.148	0.061	0.143	0.495	2.908
3	0.068	0.081	0.072	0.147	0.062	0.140	0.515	2.870
4	0.069	0.080	0.074	0.150	0.061	0.145	0.511	2.828
5	0.068	0.082	0.072	0.146	0.062	0.137	0.472	2.778
High Bkg								
1	0.055	0.044	0.055	0.049	0.046	0.047	0.046	0.060
2	0.057	0.042	0.055	0.049	0.047	0.046	0.048	0.059
3	0.059	0.043	0.053	0.048	0.046	0.046	0.047	0.059
4	0.054	0.043	0.053	0.048	0.046	0.046	0.047	0.059
5	0.056	0.044	0.055	0.047	0.047	0.048	0.044	0.057
Date	9/7/2005	9/8/2005						

## Pb6668CALC

Time (sec)	50	50	50	50	50	50	50	50
Sample	blank	1066	1067	1068	2709	2704	2711	2710
Run Number	611	607	609	610	603	604	605	606
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
Peak (kCts)								
Gross (kCts)	17.850	18.100	19.000	18.700	15.500	35.300	124.500	714.050
Bkg (kCts)	16.350	15.175	15.400	15.300	12.975	12.900	12.800	16.125
Net (kCts)	1.500	2.925	3.600	3.400	2.525	22.400	111.700	697.925
Standard Amount	0.000	77.526	82.856	81.277	18.900	161.000	1162.000	5532.000
Stds 0 - 161	5.488	16.111	21.142	19.651	13.129	161.283	826.952	5196.850
Counts	1.50	2.53	22.40	111.70	697.93			
Cu (mg/kg)	0.00	18.900	161.000	1162.000	5532.000			
All Stds	Stds 0 - 161							
slope	7.8963629	7.4543007						
intercept	54.429161	-5.693299						
0	54.429161	-5.693299						
1000	7950.79	7448.61						

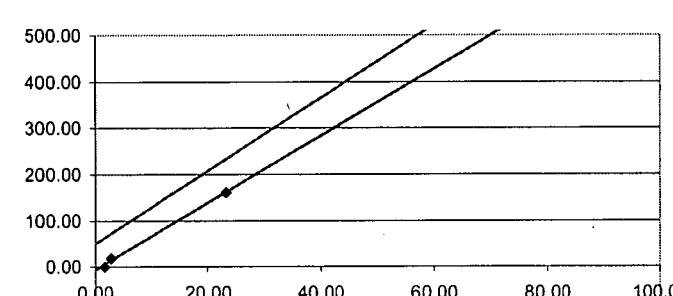
Pb6668SUM

Time (sec)	50	50	50	50	50	50	50	50
Sample	blank	1066	1067	1068	2709	2704	2711	2710
Run Number	611	607	609	610	603	604	605	606
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
<b>Low Bkg (cps)</b>	0.072	0.067	0.068	0.068	0.057	0.057	0.056	0.070
Std Dev	0.002	0.001	0.001	0.001	0.002	0.001	0.001	0.002
Percent Std Dev	2.406	2.207	1.687	2.080	3.613	1.580	1.786	2.740
<b>Peak (cps)</b>	0.071	0.072	0.076	0.075	0.062	0.141	0.498	2.856
Std Dev	0.001	0.002	0.002	0.001	0.001	0.003	0.017	0.053
Percent Std Dev	1.253	2.311	2.080	1.119	1.975	2.148	3.396	1.873
<b>High Bkg (cps)</b>	0.059	0.054	0.056	0.054	0.046	0.047	0.046	0.059
Std Dev	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Percent Std Dev	1.863	1.544	0.985	2.466	1.180	1.919	3.268	1.863
<b>Peak (kCts)</b>								
Gross (kCts)	17.850	18.100	19.000	18.700	15.500	35.300	124.500	714.050
Bkg (kCts)	16.350	15.175	15.400	15.300	12.975	12.900	12.800	16.125
Net (kCts)	1.500	2.925	3.600	3.400	2.525	22.400	111.700	697.925
Net (kcps)	0.006	0.012	0.014	0.014	0.010	0.090	0.447	2.792

## Pb6668d

Sample	blank	1066	1067	1068	2709	2704	2711	2710
Run Number	611	607	609	610	603	604	605	606
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
Program	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4
Low Bkg								
1	0.073	0.069	0.069	0.069	0.057	0.058	0.055	0.069
2	0.073	0.067	0.066	0.069	0.059	0.056	0.057	0.068
3	0.073	0.067	0.068	0.069	0.060	0.056	0.055	0.070
4	0.069	0.068	0.068	0.067	0.055	0.057	0.057	0.071
5	0.072	0.065	0.067	0.066	0.056	0.056	0.056	0.073
Peak								
1	0.072	0.075	0.078	0.076	0.064	0.141	0.497	2.897
2	0.072	0.071	0.077	0.075	0.061	0.143	0.495	2.908
3	0.070	0.072	0.075	0.074	0.062	0.140	0.515	2.870
4	0.071	0.073	0.076	0.074	0.061	0.145	0.511	2.828
5	0.072	0.071	0.074	0.075	0.062	0.137	0.472	2.778
High Bkg								
1	0.059	0.053	0.056	0.053	0.046	0.047	0.046	0.060
2	0.060	0.054	0.056	0.055	0.047	0.046	0.048	0.059
3	0.059	0.055	0.055	0.055	0.046	0.046	0.047	0.059
4	0.057	0.055	0.056	0.053	0.046	0.046	0.047	0.059
5	0.059	0.054	0.055	0.056	0.047	0.048	0.044	0.057
Date	9/7/2005							

Pb6365CALC

Time (sec)	50	50	50	50	50	50	50	50
Sample	blank	1063	1064	1065	2709	2704	2711	2710
Run Number	582	581	583	584	577	578	579	580
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
Peak (kCts)								
Gross (kCts)	18.050	20.250	19.250	19.750	16.350	36.600	127.050	716.800
Bkg (kCts)	16.475	16.050	15.975	15.950	13.525	13.375	13.675	16.500
Net (kCts)	1.575	4.200	3.275	3.800	2.825	23.225	113.375	700.300
Standard Amount	0.000	82.744	75.459	79.593	18.900	161.000	1162.000	5532.000
Stds 0 - 161	4.785	23.761	17.075	20.870	13.822	161.293	812.988	5055.872
Counts	1.58	2.83	23.23	113.38	700.30			
Cu (mg/kg)	0.00	18.900	161.000	1162.000	5532.000			
	All Stds	Stds 0 - 161						
slope	7.8753899	7.2290046						
intercept	49.666892	-6.600418						
0	49.666892	-6.600418						
1000	7925.06	7222.40						
								

## Pb6365SUM

Time (sec)	50	50	50	50	50	50	50	50
Sample	blank	1063	1064	1065	2709	2704	2711	2710
Run Number	582	581	583	584	577	578	579	580
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
<b>Low Bkg (cps)</b>	0.073	0.071	0.070	0.070	0.059	0.060	0.060	0.073
Std Dev	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.003
Percent Std Dev	1.370	1.547	0.778	1.750	3.042	2.251	1.390	3.592
<b>Peak (cps)</b>	0.072	0.081	0.077	0.079	0.065	0.146	0.508	2.867
Std Dev	0.001	0.001	0.001	0.001	0.001	0.001	0.014	0.043
Percent Std Dev	1.517	1.746	1.299	1.550	1.743	0.611	2.753	1.513
<b>High Bkg (cps)</b>	0.059	0.058	0.057	0.058	0.049	0.047	0.049	0.059
Std Dev	0.001	0.001	0.002	0.001	0.002	0.001	0.001	0.001
Percent Std Dev	1.423	1.553	3.165	1.979	3.946	1.887	1.701	0.922
<b>Peak (kCts)</b>								
Gross (kCts)	18.050	20.250	19.250	19.750	16.350	36.600	127.050	716.800
Bkg (kCts)	16.475	16.050	15.975	15.950	13.525	13.375	13.675	16.500
Net (kCts)	1.575	4.200	3.275	3.800	2.825	23.225	113.375	700.300
Net (kcps)	0.006	0.017	0.013	0.015	0.011	0.093	0.454	2.801

## Pb6365d

Sample	blank	1063	1064	1065	2709	2704	2711	2710
Run Number	582	581	583	584	577	578	579	580
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
Program	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4
Low Bkg								
1	0.074	0.071	0.070	0.072	0.061	0.059	0.061	0.070
2	0.072	0.072	0.071	0.070	0.057	0.061	0.060	0.074
3	0.074	0.071	0.070	0.070	0.060	0.059	0.060	0.073
4	0.073	0.071	0.071	0.069	0.057	0.061	0.061	0.070
5	0.072	0.069	0.070	0.069	0.059	0.058	0.059	0.076
Peak								
1	0.074	0.083	0.078	0.079	0.066	0.147	0.523	2.911
2	0.072	0.081	0.078	0.080	0.064	0.147	0.519	2.899
3	0.072	0.081	0.076	0.079	0.065	0.146	0.512	2.874
4	0.072	0.081	0.076	0.080	0.067	0.147	0.493	2.850
5	0.071	0.079	0.077	0.077	0.065	0.145	0.494	2.802
High Bkg								
1	0.059	0.057	0.058	0.058	0.050	0.048	0.049	0.059
2	0.060	0.057	0.055	0.057	0.052	0.047	0.049	0.060
3	0.058	0.059	0.056	0.058	0.047	0.046	0.050	0.059
4	0.058	0.057	0.059	0.056	0.050	0.048	0.050	0.060
5	0.059	0.058	0.059	0.059	0.048	0.048	0.048	0.059
Date	9/6/2005							



## CU6365SUM

Time (sec)	10	10	10	10	10	10	10	10
Sample	blank	1063	1064	1065	2709	2704	2711	2710
Run Number	586	585	587	588	589	590	591	592
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
<b>Low Bkg (cps)</b>	0.064	0.065	0.064	0.062	0.063	0.059	0.062	0.074
Std Dev	0.002	0.001	0.003	0.003	0.002	0.001	0.002	0.004
Percent Std Dev	3.664	2.000	4.057	4.742	3.549	1.919	3.508	5.427
<b>Peak (cps)</b>	0.106	0.111	0.113	0.112	0.125	0.178	0.190	2.623
Std Dev	0.002	0.005	0.002	0.003	0.005	0.002	0.005	0.012
Percent Std Dev	1.964	4.470	1.922	2.733	4.010	1.217	2.505	0.447
<b>High Bkg (cps)</b>	0.054	0.054	0.055	0.054	0.053	0.051	0.054	0.060
Std Dev	0.001	0.002	0.002	0.003	0.001	0.002	0.002	0.002
Percent Std Dev	2.119	4.263	4.186	6.382	2.328	2.974	4.045	2.528
<b>Peak (kCts)</b>								
Gross (kCts)	5.280	5.570	5.640	5.580	6.260	8.910	9.510	131.150
Bkg (kCts)	2.945	2.980	2.970	2.895	2.890	2.760	2.885	3.360
Net (kCts)	2.335	2.590	2.670	2.685	3.370	6.150	6.625	127.790
Net (kcps)	0.047	0.052	0.053	0.054	0.067	0.123	0.133	2.556

## CU6365d

Sample	blank	1063	1064	1065	2709	2704	2711	2710
Run Number	586	585	587	588	589	590	591	592
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
Program	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2
Low Bkg								
1	0.066	0.065	0.061	0.065	0.064	0.061	0.061	0.080
2	0.065	0.064	0.061	0.061	0.063	0.059	0.065	0.075
3	0.066	0.064	0.066	0.058	0.060	0.058	0.062	0.070
4	0.061	0.066	0.066	0.062	0.062	0.059	0.059	0.071
5	0.062	0.067	0.065	0.065	0.066	0.060	0.062	0.076
Peak								
1	0.106	0.108	0.113	0.108	0.123	0.177	0.184	2.618
2	0.107	0.119	0.112	0.115	0.120	0.181	0.196	2.637
3	0.102	0.112	0.116	0.112	0.127	0.177	0.191	2.615
4	0.107	0.112	0.110	0.114	0.123	0.180	0.187	2.634
5	0.106	0.106	0.113	0.109	0.133	0.176	0.193	2.611
High Bkg								
1	0.052	0.057	0.057	0.057	0.050	0.051	0.054	0.058
2	0.053	0.053	0.054	0.052	0.052	0.048	0.052	0.060
3	0.055	0.053	0.055	0.052	0.055	0.051	0.051	0.061
4	0.055	0.052	0.051	0.054	0.053	0.050	0.058	0.060
5	0.054	0.055	0.058	0.053	0.053	0.055	0.053	0.061
Date	9/6/2005							

CUMDLSUM

Time (sec)	10	10	10	10	10	10	10	10
Sample	blank	2709	2709	2709	2709	2709	2709	2709
Run Number	586	599	598	597	596	595	594	589
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
<b>Low Bkg (cps)</b>	0.064	0.062	0.062	0.063	0.063	0.062	0.063	0.063
Std Dev	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002
Percent Std Dev	3.664	3.485	2.911	3.802	2.600	4.773	5.329	3.549
<b>Peak (cps)</b>	0.106	0.131	0.129	0.128	0.130	0.128	0.128	0.128
Std Dev	0.002	0.003	0.002	0.003	0.004	0.001	0.001	0.002
Percent Std Dev	1.964	2.248	1.790	2.104	2.814	1.017	0.957	1.862
<b>High Bkg (cps)</b>	0.054	0.052	0.053	0.053	0.052	0.050	0.053	0.053
Std Dev	0.001	0.003	0.001	0.003	0.001	0.002	0.003	0.002
Percent Std Dev	2.423	5.236	2.168	6.258	2.115	3.868	4.865	3.454
<b>Peak (kCts)</b>								
Gross (kCts)	5.280	6.560	6.430	6.420	6.480	6.410	6.400	6.410
Bkg (kCts)	2.945	2.845	2.875	2.895	2.875	2.805	2.900	2.890
Net (kCts)	2.335	3.715	3.555	3.525	3.605	3.605	3.500	3.520
mg/kg		36.320	34.756	34.462	35.244	35.244	34.218	34.413
Actual	35.00							
Average Cts	3.58							
SDEV	0.72							
MDL	2.27							

## CUMDLD

Sample	blank	2709	2709	2709	2709	2709	2709	2709
Run Number	586	599	598	597	596	595	594	589
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
Program	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2
Low Bkg								
1	0.066	0.063	0.062	0.061	0.061	0.057	0.060	0.064
2	0.065	0.062	0.063	0.060	0.062	0.063	0.060	0.063
3	0.066	0.062	0.062	0.066	0.064	0.062	0.068	0.060
4	0.061	0.065	0.060	0.063	0.064	0.065	0.062	0.062
5	0.062	0.059	0.065	0.064	0.065	0.062	0.064	0.066
Peak								
1	0.106	0.130	0.126	0.125	0.134	0.128	0.126	0.127
2	0.107	0.127	0.129	0.127	0.131	0.129	0.128	0.130
3	0.102	0.135	0.127	0.128	0.130	0.130	0.128	0.125
4	0.107	0.132	0.132	0.132	0.124	0.127	0.129	0.131
5	0.106	0.132	0.129	0.130	0.129	0.127	0.129	0.128
High Bkg								
1	0.052	0.055	0.053	0.056	0.051	0.052	0.056	0.050
2	0.053	0.052	0.053	0.052	0.053	0.051	0.051	0.052
3	0.055	0.053	0.051	0.056	0.051	0.047	0.050	0.055
4	0.055	0.050	0.054	0.053	0.053	0.051	0.054	0.053
5	0.054	0.048	0.052	0.048	0.051	0.051	0.055	0.053
Date	9/6/2005							

## Pb6062CALC

Time (sec)	50	50	50	50	50	50	50	50
Sample	blank	1060	1061	1062	2709	2704	2711	2710
Run Number	574	562	563	564	557	558	559	560
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
Peak (kCts)								
Gross (kCts)	17.800	25.950	27.150	23.350	18.500	40.400	157.450	740.100
Bkg (kCts)	16.375	17.975	18.475	18.675	15.500	14.950	14.000	16.650
Net (kCts)	1.425	7.975	8.675	4.675	3.000	25.450	143.450	723.450
Standard Amount	0.000	61.839	67.202	36.558	18.900	161.000	1162.000	5532.000
Stds 0 - 161	4.154	46.994	51.573	25.411	14.455	161.291	933.082	4726.627
Counts	1.43	3.00	25.45	143.45	723.45			
Cu (mg/kg)	0.00	18.900	161.000	1162.000	5532.000			
All Stds	Stds 0 - 161							
slope	7.6609904	6.5405959						
intercept	0.7430593	-5.166768						
0	0.7430593	-5.166768						
1000	7661.73	6535.43						

## Pb6062SUM

Time (sec)	50	50	50	50	50	50	50	50
Sample	blank	1060	1061	1062	2709	2704	2711	2710
Run Number	574	562	563	564	557	558	559	560
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
<b>Low Bkg (cps)</b>	0.072	0.078	0.081	0.082	0.068	0.066	0.067	0.073
Std Dev	0.001	0.001	0.002	0.002	0.001	0.001	0.002	0.002
Percent Std Dev	1.389	1.282	2.254	2.009	1.040	2.021	3.245	3.018
<b>Peak (cps)</b>	0.071	0.104	0.109	0.093	0.074	0.162	0.630	2.960
Std Dev	0.001	0.002	0.002	0.001	0.001	0.002	0.034	0.063
Percent Std Dev	2.083	2.300	1.396	1.436	1.911	1.035	5.464	2.131
<b>High Bkg (cps)</b>	0.059	0.066	0.067	0.068	0.056	0.053	0.045	0.061
Std Dev	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001
Percent Std Dev	2.076	1.665	1.630	1.687	2.823	2.451	2.424	0.904
<b>Peak (kCts)</b>								
Gross (kCts)	17.800	25.950	27.150	23.350	18.500	40.400	157.450	740.100
Bkg (kCts)	16.375	17.975	18.475	18.675	15.500	14.950	14.000	16.650
Net (kCts)	1.425	7.975	8.675	4.675	3.000	25.450	143.450	723.450
Net (kcps)	0.006	0.032	0.035	0.019	0.012	0.102	0.574	2.894

Pb6062d

Sample	blank	<b>1060</b>	<b>1061</b>	<b>1062</b>	<b>2709</b>	<b>2704</b>	<b>2711</b>	<b>2710</b>
Run Number	574	562	563	564	557	558	559	560
Element	Pb	Pb	Pb	Pb	Pb (19)	Pb (161)	Pb (1162)	Pb (5532)
Program	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4	PBSCAN4
Low Bkg								
1	0.073	0.079	0.083	0.084	0.069	0.067	0.068	0.074
2	0.072	0.077	0.081	0.083	0.068	0.065	0.065	0.069
3	0.073	0.078	0.080	0.081	0.067	0.067	0.070	0.074
4	0.071	0.079	0.081	0.081	0.068	0.068	0.065	0.074
5	0.071	0.077	0.078	0.080	0.068	0.065	0.066	0.072
Peak								
1	0.071	0.103	0.107	0.094	0.074	0.162	0.664	3.028
2	0.069	0.108	0.107	0.094	0.076	0.163	0.653	3.000
3	0.072	0.103	0.110	0.091	0.072	0.163	0.636	2.972
4	0.073	0.102	0.110	0.094	0.074	0.161	0.620	2.937
5	0.071	0.103	0.109	0.094	0.074	0.159	0.576	2.865
High Bkg								
1	0.060	0.067	0.067	0.068	0.058	0.052	0.044	0.061
2	0.060	0.067	0.066	0.068	0.054	0.052	0.047	0.060
3	0.059	0.065	0.069	0.066	0.056	0.055	0.045	0.061
4	0.057	0.065	0.067	0.067	0.057	0.054	0.045	0.060
5	0.059	0.065	0.067	0.069	0.055	0.053	0.045	0.061
Date	9/2/2005							

## CU6062d

Sample	blank	1060	1061	1062	2709	2704	2711	2710
Run Number	573	566	567	568	569	570	571	572
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
Program	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2	CUSCAN2
Low Bkg								
1	0.070	0.066	0.068	0.069	0.064	0.062	0.062	0.077
2	0.071	0.065	0.068	0.068	0.065	0.065	0.068	0.076
3	0.069	0.072	0.066	0.068	0.063	0.066	0.067	0.076
4	0.067	0.070	0.069	0.070	0.068	0.062	0.062	0.077
5	0.069	0.070	0.069	0.071	0.065	0.066	0.067	0.073
Peak								
1	0.115	0.118	0.121	0.127	0.128	0.192	0.203	2.732
2	0.118	0.116	0.118	0.121	0.127	0.187	0.204	2.723
3	0.116	0.120	0.125	0.117	0.126	0.194	0.195	2.759
4	0.114	0.118	0.125	0.125	0.128	0.185	0.189	2.709
5	0.111	0.120	0.123	0.120	0.138	0.194	0.194	2.690
High Bkg								
1	0.060	0.062	0.058	0.062	0.056	0.055	0.057	0.065
2	0.062	0.060	0.058	0.059	0.056	0.055	0.054	0.061
3	0.063	0.059	0.061	0.057	0.055	0.052	0.059	0.062
4	0.061	0.062	0.055	0.062	0.058	0.054	0.054	0.062
5	0.062	0.065	0.060	0.054	0.055	0.056	0.055	0.062
Date	9/2/2005							

## CU6062SUM

Time (sec)	10	10	10	10	10	10	10	10
Sample	blank	1060	1061	1062	2709	2704	2711	2710
Run Number	573	566	567	568	569	570	571	572
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
<b>Low Bkg (cps)</b>	0.069	0.069	0.068	0.069	0.065	0.064	0.065	0.076
Std Dev	0.001	0.003	0.001	0.001	0.002	0.002	0.003	0.002
Percent Std Dev	2.143	4.324	1.801	1.884	2.878	3.192	4.524	2.168
<b>Peak (cps)</b>	0.115	0.118	0.122	0.122	0.129	0.190	0.197	2.723
Std Dev	0.003	0.002	0.003	0.004	0.005	0.004	0.006	0.026
Percent Std Dev	2.255	1.413	2.424	3.279	3.770	2.185	3.230	0.947
<b>High Bkg (cps)</b>	0.062	0.062	0.058	0.059	0.056	0.054	0.056	0.062
Std Dev	0.001	0.002	0.002	0.003	0.001	0.002	0.002	0.002
Percent Std Dev	1.851	3.737	3.942	5.817	2.187	2.788	3.885	2.430
<b>Peak (kCts)</b>								
Gross (kCts)	5.740	5.920	6.120	6.100	6.470	9.520	9.850	136.130
Bkg (kCts)	3.270	3.255	3.160	3.200	3.025	2.965	3.025	3.455
Net (kCts)	2.470	2.665	2.960	2.900	3.445	6.555	6.825	132.675
Net (kcps)	0.049	0.053	0.059	0.058	0.069	0.131	0.137	2.654

CU6062CALC

Time (sec)	10	10	10	10	10	10	10	10
Sample	blank	1060	1061	1062	2709	2704	2711	2710
Run Number	573	566	567	568	569	570	571	572
Element	Cu	Cu	Cu	Cu	Cu (35)	Cu (99)	Cu (114)	Cu (2950)
<b>Peak (kCts)</b>								
Gross (kCts)	5.740	5.920	6.120	6.100	6.470	9.520	9.850	136.130
Bkg (kCts)	3.270	3.255	3.160	3.200	3.025	2.965	3.025	3.455
Net (kCts)	2.470	2.665	2.960	2.900	3.445	6.555	6.825	132.675
	<b>13.081</b>	<b>19.745</b>	<b>18.390</b>	<b>34.600</b>	<b>99.000</b>	<b>114.000</b>	<b>2950.000</b>	
Counts	2.47	3.45	6.56	6.83	132.68			
Cu (mg/kg)	0.00	34.60	99.00	114.00	2950.00			
slope	22.591485							
intercept	-47.12561							

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